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# DISTRIBUTING CONDENSED VERSIONS OF DISPLAYABLE INFORMATION IN HYPERTEXT MARKUP LANGUAGE DOCUMENTS TRANSMITTED ON THE WORLD WIDE WEB TO PERSONAL PALM-TYPE DISPLAY COMPUTERS

5    Technical Field

The present invention relates to personal digital assistant computers, generally referred to as personal palm-type computers, and more particularly, to the distribution of World Wide Web (Web) document information

10    content to such palm devices.

Background of Related Art

Personal Digital Assistant (PDA) display terminals, such as the 3Com PalmPilot(™) and the International Business Machines Corporation (IBM) WorkPad(™) have been

15    building a user base over the past few years. Current estimates are that there are several million of these devices in present usage. While these personal devices have found limited selective markets among users with specific needs and habits, they have not, as yet, found

20    the widespread appeal which was expected when they first began to appear almost a decade ago. Consequently, the technology is seeking applications of greater mass appeal. One area of great potential is in the area of communication through the Web or Internet (used

25    synonymously). Initially, the palm-type computers accessed the Web through the Web browser programs of the desktop computer with which the palm-type device was synchronized, e.g. HotSynced, where the device is synchronized with a desktop personal computer which

30    functions as a receiving station on the Web, so that the communication may be through the synchronized personal

computer. In recent years, personal palm devices have
also developed a networking protocol: TCP/IP, which
permits direct connection to the Web through PDA modems,
which are described in greater detail at pp. 148-149 of

5    the text Palm III & PalmPilot, Jeff Carlson, Peachpit
Press, 1998. With either approach, users accustomed to
browsing the Web by using a desktop computer with highly
visual Web documents with multiple graphics and
animations, initially experience disappointment with the

10    limited display of the personal palm device.
Manipulation of information on this small display is
difficult since the user has to scan and scroll in all
directions to comprehend information laid out for
conventional larger screen desktop computer displays.

15        There are Web browser programs such as ProxiWeb
which significantly reduce the Web page size to fit the
confines of the palm-type device. However, this browser
program detours the HTML data through a proxy server
which resizes the Web page. In most cases, the

20    information on the palm-type device screen is so small
that it is difficult and frustrating to read.

## Summary of the Present Invention

        The present invention involves the acceptance of the
fact that it is not possible to provide the color,

25    graphics and image qualities and quantities of the
standard desktop computer display on the palm-type device
screen. However, the invention also recognizes that
since the number of palm-type devices in general usage is
approaching ten million and growing, developers and

30    owners of Web documents will need some simple and
effective way of communicating their information to palm-
type devices.

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Accordingly, the present invention provides to the developers and owners of Web documents, the ability to create Hypertext Markup Language (HTML) documents which in addition to their basic set of natural language data

5    conveying a first version of information of a particular content displayable to users at conventional Web desktop display stations, provide a second set of natural language data conveying a second version of condensed displayable information of the same particular content

10   displayable to users of personal palm-type display computers connected to the Web. Also, in addition to the basic set of HTML tags, which identify the basic set of natural language data, the document provides for a second set of tags identifying said second set of natural

15   language data which is available only for the palm-type devices. The natural language data to be displayed may include both text and image data.

The accessing of the tagged natural language data, which is only available to the palm-type devices may be

20   accomplished by a program which may be conveniently implemented through the Web browser associated with and supporting the palm-type computer. The program recognizes the second set of tags and implements the access of the second set of condensed information

25   suitable for the palm-type computer and displays the condensed information on the palm device.

The present invention is available to palm-type computers which access the Web directly in which case the accessing program could be associated with the palm-type

30   device browsers. Alternatively, if the palm-type device is configured so as to be synchronized with a related desktop computer, e.g. HotSynced, then the palm device

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accessing program may be associated with the desktop
computer Web browser.

## Brief Description of the Drawings

The present invention will be better understood and
5   its numerous objects and advantages will become more
apparent to those skilled in the art by reference to the
following drawings, in conjunction with the accompanying
specification, in which:

Fig. 1 is a generalized diagrammatic view of a Web
10   portion on which the present invention may be implemented
including palm-type devices configured to access the Web
both directly or through a synchronized related desktop
computer;

Fig. 2 is an illustrative desktop computer display
15   screen showing the complete version of displayed
information from a particular Web document;

Fig. 3 is an illustrative palm-type computer display
screen showing the condensed version according to the
present invention of the information displayed in the
20   desktop of Fig. 2;

Fig. 4 is an illustrative flowchart describing the
setting up of the method of the present invention for the
creation and handling of HTML Web pages with versions of
the same data content for desktop displays and condensed
25   for display on personal palm-type devices; and

Fig. 5 is a flowchart of an illustrative run of the
method set up in Fig. 4 on a Web network, like that shown
in Fig. 1.

## Detailed Description of the Preferred Embodiment

30   Referring to Fig. 1, there is shown a very
generalized diagram of a Web portion on which the present

invention may be implemented, including palm-type devices configured to access the Web both directly or through a synchronized related desktop computer. However, before proceeding further with this description, we will, at

5    this point, provide some background with respect to the PDAs or personal palm-type devices involved in the present invention. The most common PDAs included in the present generic definition: personal palm-type devices include Microsoft's WinCE line; the PalmPilot line

10   produced by 3Com Corp.; and IBM's WorkPad. These devices are comprehensively described in the previously mentioned text, <u>Palm III & PalmPilot</u>. Palm-type computer 41, as shown in Fig. 1 which connected directly into the Web 50, as will be later described, contains a data processor 40,

15   operating system 45 and application programs 46 which are shown during operation in device Random Access Memory (RAM) 44. Current palm devices contain about 2 to 4 MB of RAM. Also included is a permanent programmable memory, a programmable Read Only Memory (ROM) 43 which

20   may be an EPROM or flash ROM, which are described in the text at page 38. Because these flash ROMs can now provide 4 MB of capacity, more of the application programs heretofore stored on the personal palm device's RAM may now also be stored in this ROM, in addition to

25   the device operating system and built-in applications which are, conventionally, also stored in the ROM until needed and then moved into RAM. Flash ROMs may be written into by a technique known as flashing so that future updates can be distributed as software and flashed

30   into the ROM hardware.

Personal palm devices also have a networking protocol, TCP/IP, which permits connection to the Web 50 through PDA modems, e.g. modems 54 and 52, which are

described in greater detail at pp. 148-149 of the above-described text.  The palm-type computer 41 may connected into the Web 50 through standard Web wired modem connections.  Reference may be made to the text,

5    _Mastering the Internet_, G. H. Cady et al., published by Sybex Inc., Alameda, CA, 1996, particularly pp. 136-147, for typical connections between local display stations to the Web 50 via access server 53 through connection 51. The embodiment of Fig. 1 has a host-dial connection.

10   Such host-dial connections have been in use for over 30 years through network access servers 53 which are linked 51 to the Web 50.  The servers 53 may be maintained by a service provider to the personal palm-type device 41. The host's server 53 is accessed by the client device 41

15   through a normal dial-up telephone linkage 58 via modem 54, telephone line 55 and modem 52.  The connection to access server 53 may also be made through wireless modems, described, for example, at pages 148 and 149 of the above-mentioned _Palm III & Palm Pilot_ text.

20        Alternatively, the palm-type computer 32 may be connected into the Web through its corresponding or related desktop computer 31 in the case where the palm device is configured in a synchronized relationship with the desktop.  In such a case, the desktop computer's Web

25   connection through modems 32 and 34 and connector 35 through Web access server 33 will provide appropriate Web access for the palm-type device under the control of the desktop computer's browser 37.

        It should be noted that the term personal palm-type

30   device is used to generally cover all varieties of palm-type devices.  These include cellular phones and related wireless devices, smartphones, and Internet screen phones.

Irrespective of the palm-type computer's
configuration in accessing the Web directly or indirectly
through the related desktop computer, the present
invention provides the developers or the owners of Web
5   HTML documents with the ability to provide condensed
versions of displayable information identified by tags
and accessible for only the Palm-type computers or
devices. There follows an example of the code for such an
HTML document.

10                     **HTML CODE FOR WEB DOCUMENT**

```
<html>
<head>
<title>Movie Times</title>
<meta http-equiv="Content-Type" content="text/html;
15      charset=iso-8859-1">
</head>
<body bgcolor="black">
<table width="600" border="0" cellspacing="0"
     cellpadding+"0")>
20   <tr>
     <td colspan=2 width=600><img src="banner.jpg"
        width="600" height="61"></td>
    </tr>
   <tr>
25    <td width=277 valign=top><img src="xyz.jpg" width="277"
        height="339"></td>
     <td width=323 bgcolor=black valign=top>
      <p><font color="white" face="Arial, Helvetica,
         sans-serif" size="2">Showing
30     at: <br>
      MY CREEK CINEMA <br>
      2224 Somestreet<br>
      </font><font color="white" face="Arial, Helvetica,
         sans-serif size="2">
35     Someplacein, TX 78746<br>
      </font><font color="white" face="Arial, Helvetica,
         sans-serif size="2">
      512-333-2222 <br>
      ADULT $7.00, CHILD $4.50, BARGAIN BEFORE 5PM &amp; ALL
40        DAY TUESDAY $4.50, FIRST MATINEE SHOWTIME $3.50,
        ADULT FRIDAY &amp; SATURDAY AFTER 5 PM $7.50 <br>
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<br>
Life as a Computer Programmer (PG13:   SOME THEMATIC
    ELEMENTS, LANGUAGE AND BRIEF SEXUALITY., 95min.)
<br>
Today's showtimes; <br>
02:25PM 04:55PM 09:55PM <br>
<br>
May Cat Fred (R:   VIOLENCE AND TERROR AND FOR
    LANGUAGE., 98 min.) <br>
Today's showtimes:   <br>
Now showing on 2 screens.  <br>
2:45PM 03:30PM 05:15PM 07:00PM 07:45PM 9:30PM <br>
<br>
    </font></p>
    </td>
  </tr>
</table>
<PDA>
Shows at:   MY CREEK CINEMA <br>
2224 Somestreet<br>
Somplacein, TX 78746<br>
512-333-2222 <br>
_____ <br>
Life as a Computer Prgmr. (PG13) <br>
Showtimes:   <br>
02:25PM 04:55PM 09:55PM <br>
<br>
My Cat Fred (R)<br>
Showtimes:   <br>
2:45PM 03:30PM 05:15PM 07:00PM 07:45PM 9:30PM <br>
<br>
</PDA>
</body>
</html>
```

The example is a Web document giving user movie
information for "My Creek Cinema".  The primary upper
portion of the HTML code beginning with the tag <title>
and ending with the tag </table> defines the conventional
display for the cinema as would be displayed for the Web
page on a desktop computer.  When accessed by the user,
this would appear as the contents 12 of desktop computer
screen 11 in Fig. 2.  There are graphic images as well as

●                                              ●

detailed information regarding the movies being shown at
the cinema.

    On the other hand, when the same Web document is
accessed by the PDA or palm-type device, only the code in
5   the above HTML document between the tags <PDA> and </PDA>
is accessed, and thus displayed as the condensed
information content 22 on the display screen of the PDA
21 shown in Fig. 3.  The data still relates to the cinema
and the schedule of movies being shown, but is
10  substantially condensed.

    It should be noted that when the browser for a
desktop computer accesses the HTML data on this page, it
will ignore tags that it is not programmed to understand.
Thus,  the desktop browser ignores the <PDA>..</PDA> and
15  the data therein between.  Accordingly, the HTML page may
be set up by their owners or developers with different
displays for a plurality of different PDAs or palm-type
devices, e.g. sets of tags such as <PalmIII>..</PalmIII>;
<WinCE>..</WinCE>; <Nokia>..</Nokia>; or
20  <PalmV>..</PalmV> may be used to define different sets of
display data for the several different PDAs.  Then the
browsers associated with each of the different PDAs would
be set up to access only the data defined by the tags
which the respective browsers can read.

25    Now, with reference to the programming set up shown
in Fig. 4, the process of the present invention is set up
to provide the developer with a process for creating a
Web document, HTML, which is conventionally displayable
at receiving (desktop) display stations on the Web, step
30  61.  The developer is further enabled to create in the
Web document, a section (<PDA> to </PDA> in the above
HTML page) which defines a condensed version of the
desktop displayable content for display on a PDA or Palm-

type device, step 62.  The developer is provided with
HTML tags to define the condensed version, step 63.
Then, there is provided in the Web browser programs which
support the palm-type devices, routines for recognizing
5    display requests from PDAs or palm-type devices and for
providing the tagged condensed versions in response to
such requests, step 64.

The present invention can operate to provide the
developer or owner of the Web page with the most control
10   over not only the original version of the document for
the conventional desktop computer displays but also which
information shall go into the condensed versions of the
page to be accessed by the PDAs or palm-type devices.
Accordingly, even if the Web access system involves the
15   direct-dial Web browsers such as the hereinabove
mentioned  ProxiWeb which operates to significantly
reduce the Web page size to fit the confines of the palm-
type device, the program of the present invention may be
set up so that the condensed versions of the present
20   invention take precedence in determining the content of
the PDA display, i.e. the condensed versions of this
invention would override the reduced versions provided by
the proxy servers in  transcoding servers as in ProxyWeb
where the browser program would otherwise detour the HTML
25   data through a proxy server which resizes the Web page.
Such proxy or transcoding servers are described on pp.
167-169 of the above cited text, <u>Palm III & PalmPilot</u>.
In such a setup, the proxy server could first parse the
transmitted Web page to determine if there were any PDA
30   or like tags which would indicate a condensed version of
the page created by the developer or owner of the page.
If so, then there could be an override of the page
normally provided to the PDA by the proxy server in favor

of the condensed version provided by the system of the present invention.

Now, with reference to the flowchart of Fig. 5, a simplified illustrative run of the process set up in Fig.

5   4 will be described.  Initially, a determination is made as to whether there has been a request for a Web page, step 71.  If No, the process is returned to step 71, and a Web request is awaited.  If Yes, the HTML Web page is accessed from the Web, step 72.  The request for the page

10  may be by a PDA through its browser, a desktop computer through its browser or, in the case of a PDA functioning in HotSync with a desktop, then again through the desktop browser.  In any event, step 73, a determination is made as to whether the request for the displayable data is

15  from a PDA (palm device), step 73.  If No, then, step 74, the full Web page version is parsed and displayed on the requesting desktop computer.  If Yes, then step 75, the tagged condensed version is parsed from the Web page and sent to the Palm-type device for display.  A

20  determination is made as to end of session, step 76.  If Yes, the session is exited, step 77.  If No, the process is returned via branch "A" to initial step 71, and the process is continued.

It should be noted that the programs covered by the

25  present invention may be stored outside of the present computer systems until they are required.  The program instructions may be stored in another readable medium, e.g. in disk drive associated with the desktop computer or in a removable memory such as an optical disk for use

30  in a CD ROM computer input, or in a floppy disk for use in a floppy disk drive computer input.  Further, the program instructions may be stored in the memory of another computer prior to use in the system of the

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present invention and transmitted over a Local Area
Network (LAN) or a Wide Area Network (WAN), such as the
Internet, when required by the user of the present
invention. One skilled in the art should appreciate that
5    the processes controlling the present invention are
capable of being distributed in the form of computer
readable media of a variety of forms.

Although certain preferred embodiments have been
shown and described, it will be understood that many
10   changes and modifications may be made therein without
departing from the scope and intent of the appended
claims.